Land and Forest Allocation and Its Implication on Forest Management and Household Livelihoods: Comparison of Case Studies from CBNRM Research in Central Laos

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Abstract

National University of Laos (NUOL) conducted a research capacity building project on community based natural resource management (CBNRM) between November 1999 and May 2003, funded by the International Development Research Centre (IDRC). The project supported three multi-disciplinary case studies conducted in central Laos in Vientiane, by groups of 11 academic faculty at NUOL focusing on the impact of government reform on resource management on local resource tenure.

The current paper reviews a landmark policy on resource management in Lao People's Democratic Republic (Lao PDR), the Land and Forest Allocation Policy, which was introduced in the early 1990s as a mean to legitimately recognise customary rights of the local communities to access and use land and forest resources, as well as to management them. The paper will particularly examine the impact of the Land and Forest Allocation Policy on customary resource use practice in three case study sites studied by the NUOL academic faculty.

Comparison of the three case studies elucidates the nature of deconcentration in resource management administration from the central government to the local authorities. Land and Forest Allocation Policy is thus perceived as a state effort to simplify resource boundary and

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tenure to consolidate its political and fiscal control in remote areas where central government influence had been minimal in the past. The three case studies also indicates the gap between expected goals of the land reform and the varying realities of resource management in the three research sites based on their diverse geographical setting, historical access to resources, and access to market and to agricultural capital. In particular, the study indicates that the reorganisation of space through the Land and Forest Allocation had instigated population displacement of households in the upland communities with little access to productive resources instead of improving their livelihood basis in their villages.

Key Words

Land and Forest Allocation, resource tenure, customary resource use practice, decentralised forest management

1 Introduction

The three-year Research Capacity Building Project at the National University of Laos (NUOL) was funded by the International Development Research Centre (IDRC) to develop the research capacity of academic faculty at NUOL in issues pertaining to community based natural resource management (CBNRM). During the period between November 1999 and December 2003, eleven academic staff from four faculties of NUOL were introduced to issues on CBNRM and resource tenure through series of trainings (Fujita and Phanvilay 2003; Vandergeest, Khamla Phanvilay et al. 2003). Three multi-disciplinary research teams were organized in the process and conducted research projects in three sites (Figure 1).

In this paper, we will first review the government reform on resource management policy. In particular, we will review the development of the Land and Forest Allocation (LFA) and how administrative management of resources was decentralised or referring to Ribot's (cited on p3, Dupar, Badenoch et al. 2002) definition of deconcentration or administrative decentralisation that transfers administrative power from the from the central government to the local authorities. The later section will review the implications of simplified resource boundary and tenure through the application of LFA. This is followed by a review of three case studies conducted by the three multi-disciplinary research teams in central Laos near the capital of Vientiane. The comparison of three case studies elucidates effects of LFA on customary resource access and resource tenure. In addition, the comparison also illustrates other drivers including economic integration of the villages to the local market and government policy on forest conservation that are affecting the local resource use practices. In the last section of the paper, we will consider the significance and policy implication of field-based research on CBNRM at NUOL.

2 Community Resource Management and LFA

Laos retains the highest proportion of forest and woodland in mainland Southeast Asia comprising both deciduous and evergreen forests. According to the national reconnaissance survey conducted by the National Office of Forest Inventory Project in 1989, dense or mature forest with more than 20 percent canopy cover accounted 47 percent of total land area (Manivong and Sandewall 1992). A more recent estimate of forest cover has dropped to 41 percent of total national land area indicating a trend of rapidly declining forest cover (Tsechalicha and Gilmour 2000). While conditions of declining forest differ across different

parts of the country, shifting cultivation and logging are blamed as the main causes of forest degradation in Laos (Domoto 1997).

Forestry resources have been an essential part of the national economy since the late 1970s. Timber and wood exports accounted 34 percent of national exports in 1998 (World Bank 2001). Forest and its resources are also an important part of rural livelihoods which are essentially subsistence based. Of the 4.6 million populations, 83 percent lives in rural areas and are engaged in multiple livelihoods (UNDP 2001). While rural farming system differ from one place to another, non-timber forest products play important role in rural livelihood, typically accounting 40 to 60 percent of annual rural household income (Duangsavanh et al. 2002).

Community based natural resource management became increasingly important in Laos during the 1990s. The Land and Forest Allocation (LFA) is a landmark reform in natural resource management that was developed during the early 1990s. It delineates clear village boundary and classifies village forest and land resources. The process was first recognised as the *Baeng Din Baeng Paa* (Land and Forest Classification). Following the classification of forest and land, agricultural land and barren hilly land or degraded forest, which had been customarily used by the villagers, were allocated to individual households to register for temporary land title. In the meantime, LFA does not intervene with agricultural lands already claimed and used by individuals and households. The key aim of introducing LFA is to clarify the village boundary, classifying village forest and land to mitigate illegal logging activities and shifting cultivation in village forest. A particular emphasis is also placed on stabilising land use in the upland areas.

LFA has also been a significant step that decentralised administrative responsibilities to manage local resources from the central government authority to local authorities. It legally recognised village-based management of forest and land. Dupar, Badenoch et al. (2002), however, point out that LFA in Laos is a form of administrative decentralisation, also known as deconcentration, which is still an upwardly accountable form of management but allowing local resource users and resource managers to participate in the decision making process. For example, while villagers participate in the resource management planning process, resource use by villagers requires approval by the district authorities. Any change in the management also needs to be approved by the state.

Since its nation-wide campaign, more than 2000 villages have completed the Land and Forest Allocation in Laos by 2002[3]. Numbers of villages completing LFA are announced

[3] Official record on the total numbers of villages completing the Land and Forest Allocation do not signify that all villages have completed the eight-step process. In most cases, completion signifies the village boundary delineation, land use classification and allocation of temporary

occasionally in public media as such as radio, television and newspapers acclaiming that LFA has contributed to controlling shifting cultivation practices and eliminating rural poverty[4]. Meanwhile, few studies have been conducted on LFA which discuss LFA's effect on customary resource use and rural livelihood. For example, Raintree (2001) points out that communities with high dependence on forest are negatively affected by LFA as household access to resources are restricted by the imposition of new functional resource boundaries and management rules. Others point out that, restricted use of swidden field in the upland community decreased agricultural productivity as a result of shortened fallow (Roder 1997). The participatory poverty assessment conducted by the State Planning Committee also indicate that migrant villages with limited access to resources were affected by LFA as their resource access was restricted and often incurred migration to other areas (State Planning Committee 2000; Vandergeest 2003).

Thus, community resource management has been placed at the pinnacle of policy debate during the early 2000s. While LFA supports local involvement in the resource management, it has also brought different impacts upon the customary resource access and use in villages across Laos. In the following section, we will review the case studies conducted by groups of teachers from NUOL through IDRC supported research capacity building project. Through the comparison of case studies, we aim to understand the effect of LFA on community resource access and use, as well as different factors that affect local resource use practice.

3 Three Case Studies

Setting

Three research sites in Vientiane Municipality and Vientiane Province were studied during the period between May 2000 and December 2002 by three groups of academic faculty of the National University of Laos (2002). Two studies, Phonethong and Taothane villages, and Namone and Houay Yang villages, were comparative studies on the effect of LFA in neighbouring villages that had shared resources. Both studies were conducted in midland areas, and dealt with villages with different settlement history and ethnic origin[5]. Meanwhile, the third study was conducted in a village (Angnhai village) located in the lowland village on the outskirt of Vientiane. The third study particularly incorporated mapping technique to

land use rights for agricultural land and barren land to individuals.

[4] As eradication of rural poverty has become national goal in the late 1990s, the causes of the Land and Forest Allocation became tied in addition to the elimination of the Shifting Cultivation which had been the earlier national goal.

[5] Of the two studies, a study conducted in Namon and Houay Yang Villages benefited particularly from a previous study conducted by Khamla Phanvilay to understand the changes in the resource use pattern as well as local responses to the varying changes that affected land use in two villages (Phanvilay 1996).

understand the physical changes that occurred within the customary boundary. This was integrated with oral resource use history to understand the factors that affected resource use change over a period of five decades.

Phonethong and Taothane Villages, Hinheup District, Vientiane Province

Phonethong and Taothane Villages are in Hinheup District, Vientiane Province. The two villages are located along the National Route 13 North. The villages originated during the early 1970s as wartime migrants arrived from northeastern provinces of Laos, from Houaphanh and Xiengkhouang Provinces. In 1975 following the establishment of the Lao People's Democratic Republic, Taothane Village consisting migrants from Xiengkhouang Province and Phonethong Village consisting migrants from Houaphanh Province were distinguished into two villages. Taothane Village is predominantly Khmu ethnic group (Mon-Khmer ethno-lingustic group) with total of 33 households and Phonethong is Tai ethnic group (Tai-Kadai ethno-linguistic group) with total of 81 households (Boulapha et al. 2002).

LFA was implemented in two villages in 1996. Following the eight-step procedures underlined in government legislation (MAF 1996), a group of local officials from the District of Agriculture and Forestry Office (DAFO) and members of village organisation consisting village leader, village elder, village women's union and youth group leaders, as well as forest volunteer joined to draw village boundaries and to classify forest areas (Boulapha et al. 2002). Village boundaries were negotiated among the neighbouring villages and were drawn clearly on village maps. Following the agreement, forest and other land areas were classified on the map and posted in each village to indicate the delineated boundaries. Following the boundary delineation, each village developed rules and management plans and submitted to DAFO. This formalised village responsibility to manage resources within the agreed boundary.

In the case of Phonethong and Taothane villages, the new resource boundary affected villagers' access to resources between the two villages, which had been used commonly by members of two villages. In particular, LFA affected villagers' access to swidden and fallow in such area. LFA also limited villagers' access to forest, as they introduced new legal classification of forest and land. Moreover, household's access to swidden area was limited within one's village[6]. In addition, LFA restricted villagers' access to non-timber forest products within each village boundary.

The study by Boulapha et al. (2002) illustrated that LFA was able to restrict the expansion of

[6] Forest was classified into five categories according to the Forest Law issued in 1996. This includes protected forest (*paa pongkan*), conservation forest (*paa sanguan*), useable forest (*paa somxai*), regeneration forest (*paa feunfu*), and degraded forest (*paa xutxom*).

new swidden fields in two villages and also expanded areas of permanent agricultural land. Table 1 summarizes changes in village land based on a survey conducted by the Japan International Cooperation Agency (JICA) in 1996 and group's own field survey. Table 1 indicates that swidden field area decreased to approximately one-third in Taothane village and to a mere three percent in Phonethong village. Not only did the areas under shifting cultivation decrease in two villages, but areas of swidden fallow over three years generally known as *paa lao kae* increased between 1996 and 2001. Furthermore, Table 1 indicates a marked decrease in recent fallow or *paa lao oon* in two villages, which signifies that areas of swidden fallow are left to regenerate following the application of new forest classification through LFA. Meanwhile, Table 1 also indicates that paddy fields area more than doubled in Taothane village, while it increased more than four times in Phonethong village. In addition, garden areas increased approximately twelve times in Taothane village and more than nine times in Phonethong village.

Table 1. Forest and Land Use changes in Taothane and Phonethong Villages (Unit: ha)

Land Use Type	Taothane		Phonethong	
	1996	2001	1996	2001
Paddy	3.1	12.0	11.2	33.2
Swidden	11.7	0.4	60.0	21.0
Garden	0.7	5.1	1.6	12.5
Grass	0	1.2	0	9.2
Pond (Fishery)	0.3	1.2	0.8	1.2
Degraded Forest or *paa lao kae* (more than 3 year fallow)	199.4	227.1	210.1	444.6
Degraded Forest or *paa lao oon* (less than 3 year swidden fallow)	80.8	37.0	362.4	144.6
Afforested Land	0.7	4.0	0.7	9.0
Total	296.7	266	646.8	675.5

Namone and Houay Yang Villages, Longxane District, Vientiane Province

Namone and Houay Yang are two adjoining villages in Longxane District, located on the northeast of Nam Ngum Reservoir in Vientiane Province. Villages were established in the early 1970s when the area was inundated to create Nam Ngum Reservoir. While Namone village is home to a predominantly Lao population, adjoining Houay Yang Village consists of Hmong (Hmong-Mien ethno-linguistic group) residents that had migrated from Xiengkhouang

Province.

In 1995, Phanvilay (1996) conducted a study that compared land use in these two villages between 1992 and 1996. The study identified three factors of land use changes in two villages including government policies such as (1) resettlement programme to encourage people move from upland areas to settle in the lowlands, (2) economic reform to encourage private business and villagers explore more forest resources for commercial purposes, and (3) promotion of self-sufficient rice production. These policies contributed to the expansion of shifting cultivation areas as well as forest land conversion, and a poor accessibility and lack of technological support to improve upland cultivation. The study also revealed that unclear user and tenure rights on natural resources had created the space for resource degradation. Forest and land are considered as common property, everyone has rights to access and use these resources, yet at the same time the central regulation enforcement in natural resources management was weak and ineffective. The study conducted by Namsena et al. (2002) thus followed on the earlier study conducted by Phanvilay (1996), and looked more specifically into the impact of LFA on agricultural households in these two villages.

As in the case of Boulapha et al. (2002), study by Namsena et al. (2002) also point out that area of swidden had decreased in Houay Yang village, which is an upland village. Table 2, which was based on field interview at district office, indicates that by 2001, swidden field in Houay Yang village decreased to one fourth the area covered in 1996. While the statistic on village land areas could not be cross-checked with other information, Namsena et al. (2002) found that many households in Houay Yang village migrated to other villages during the late 1990s as a result of increased government restriction on swidden cultivation combined with increased economic opportunities outside of the village. Their study found that often migration took a pattern of joining other Hmong relatives in district capital, and in other areas nearby major national route.

In addition, the study found that villagers in Houay Yang that remained in the village began to purchase lowland agricultural land in Namone village to cultivate paddy field in the lowland. This occurred as there was increased pressure to reduce upland shifting cultivation in Houay Yang, but also due to a boom in fisheries that lured Namone villagers during the late 1990s, allowing Houay Yang villagers to purchase unused agricultural land in Namone village. As Table 2 indicates, paddy field in Namone increased between 1996 and 2001. In the meantime, Table 2 also indicates that swidden field in Namone increased during the same period. As a result of in-depth household interview in both Namone and Houay Yang, Namsena et al.

(2002) found that this was due to a new type of shifting cultivation, mainly conducted by Namone farmers who invested in fishing during the late 1990s and had sold their lowland paddy fields. These farmers were once again returning back to farming, as they experienced declining catch and market slump.

While the blame of shifting cultivation is often cast upon the upland ethnic minorities, the case study by Namsena et al. (2002) illustrates the diverse livelihood strategies taken by upland and lowland communities in response to government policy change, and socio-economic change. This is an important notion to consider, as LFA is not only the factor that affect local resource use practice, but one of the many other factors. Furthermore, the study also pointed out an important aspect on the effect of LFA on population movement. While the idea of LFA is to fix people to a designated space, by specifying the resource use practice, an example of Houayang village indicates that instead of fixing, LFA has a displacement effect. This also means that population is being concentrated in other areas, while upland areas are being depopulated.

Table 2. Paddy and Swidden Area in Namone and Houay Yang Village

Villages	Paddy		Swidden	
	1996	2001	1996	2001
Namone e	30.0	36.8	3.4	6.1
Houay Yang	23.5	20.9	37.7	8.7

Source: Namsena et al. 2003

Angnhai Village, Sikhotabong District, Vientiane Municipality

Angnhai village is located in the outskirt of Vientiane along the Mekong River in Sikhotabong District, Vientiane Municipality. The village was established over 100 years ago, and is a predominantly a Lao community. By incorporating spatial analysis and oral history, study by Chanthasen et al. (2002) illustrated a dynamic resource use change in the village. The results of spatial analysis provided information on increased forest degradation and forest fragmentation in the customary village territory. Furthermore, by integrating spatial analysis with oral history of the village, the study illustrated the impact of war on land and forest use between 1960 and 1975. In addition to war, the study also found other factors such as development of infrastructures (i.e. roads and irrigation), government policy on forestry and land use as well as market integration had affected the outlook of resource use in Angnhai.

The study also indicates that incidence of swidden cultivation in the upland areas conducted by Angnhai villagers declined in the last five decades (Chanthasen et al. 2002; Thongmanivong

and Fujita 2003). This was due to migration of wartime refugees, and increased integration to regional market during the 1980s that encouraged farmers in Angnhai to conduct cash crop production including tobacco, tomato, eggplant, and long bean. Intensive use of lowland agricultural land was further encouraged by the development of two irrigation channels in 1983 and 1992. This had resulted in abandoning of upland swidden fields by Angnhai villagers by the time LFA was implemented in 2001.

Through the household survey, Chanthasen et al. (2002) found that cash crop production is important part of household economy among different classes. In addition to rice production, wealthier farmers engaged in cash cropping and in large livestock production including pig, cattle and water buffalo. The survey also highlighted that wealthier farmers in the village tended to have more access to combination of factors including paddy field, capital resources, agricultural technology and market information. In the meantime, cash crop was also important for households that had limited access to agricultural land. These households often rented land from wealthier households and produced cash crops. While shifting cultivation had traditionally been the way to supplement household rice shortage, the villagers now produced cash crops to purchase rice.

The study by Chanthasen et al. (2002) thus illustrates the diverse factors that affect local land and resource use. It also points out the importance of learning long-term historical patterns of resource use change. At the same time, the study also highlighted the different notion of resource boundary expressed by the villagers and that defined by the state. For instance, during their fieldwork, Chanthasen et al. (2002) found that customary village boundary was much more expansive compared to the new boundary imposed by LFA. This was particularly due to the fact that the new village boundary carved out areas of national reserve forest from the customary village territory. Given the weak management, the former village territory had become an open access territory where no effective mechanism functioned to restrict activities such as encroachment and logging.

4 Comparison of Case Studies

LFA and Its Effect on Community's Resource Use Practice

In all three research sites, LFA was conducted applying the general procedures outlined in the government policy. Villagers were mobilised by the district authorities to determine the boundary, and to decide upon management plan. In all three research sites, village boundaries were recognised using natural landmark such as forest, stream, tree and so forth prior to LFA.

Neighbouring villages also shared resources in the border areas including collection of non-timber forest products and hunting. Shifting cultivation was also permitted in the border area, while this required mutual consent among the members of neighbouring villages.

LFA on the other hand, distinguished village boundaries and established a more explicit rule to manage forest by classifying them into five categories defined in the Forest Law. Categories were based on the scientific notion to protect watershed areas and to recover areas of forest that had degraded into low density forest. The priority was thus placed on forest protection and conservation, more so than allocating new agricultural land for local villagers.

By underlining a process of village-based forest management, LFA formalised accountability of the village to the District authorities. This occurred at two levels in all three research sites. At one level, the village organisation became accountable to manage village boundary and its classified land use following the land use and management plans. At the second level, village organisations became accountable to collect land taxes from individual households that registered their land use rights and oversaw individual land use within the village.

The three cases also illustrate the constraints of LFA to improving resource use practices in the village. In particular, short duration of village boundary delineation and village resource boundary identification process is often inadequate to incorporate customary sense of boundary, and how different resources have been used by different members of neighbouring villages and also by different individuals within the village. It is also constrained by the lack of technical expertise and financial resources at the district offices to identify effective ways to improve resource use and management together with the villagers. For example, LFA restricted villagers from expanding their swidden fields in the uplands. Instead, households were conformed to rotational swidden cultivation under three-year fallow cycle. This increased weeding requirement and as a result reduced per capita labour productivity of swidden rice. However, there was hardly any support by the district authorities to improve the productivity of swidden rice cultivation.

Meanwhile, the case of Angnhai village had illustrated that not only technical support such as development of irrigation canals were essential but also integration to local market had been the driving force that intensified use of agricultural land in the lowland areas, thereby relieving pressure of agricultural land expansion in the upland areas. The case in Namone, on the other hand, is complex, as market boom and bust in fisheries diverted farmers from farming to fishing and again to farming. While market boom in fisheries lured many Namone farmers to

sell their paddy fields and become engaged in fishing, they returned to farming when the catch declined and market price stagnated as a result of increased market supply through cultivated fishery in Nam Ngum. However, as they had sold their productive lands to their neighbouring villagers, they were left with agricultural land in the uplands.

LFA and Its Impact on Livelihoods

In all three case studies, households with greater access to productive agricultural land in the village were able to respond quickly to the privatisation of land introduced by LFA and diversify their livelihood basis. This was particularly prominent in the case of Angnhai. Furthermore, in all three case studies, it was the early settlers that had sufficient access to the most productive agricultural land in the village. This often meant access to agricultural land in the lowland with sufficient water supplies as paddy rice production was a significant part of rural livelihood (Boulapha et al. 2002).

Meanwhile, LFA imposed constraints on households without access to agricultural land in the lowlands. This was due to the fact that LFA restricted expansion of swidden fields particularly in the upland areas. While swidden was allowed, it consigned households to practice swidden on three-year fallow cycle. LFA also allocated new agricultural lands to households without access to land. However, these were often less productive land, and required additional investment which the landless households were often short of.

In Phonethong, Taothane, Namone and Houayang villages, farmers migrated to other places as there was lack of good agricultural land, agricultural credits and technical support to improve the land use. Such displacement effect of LFA has also been noted also by the Participatory Poverty Assessment Study conducted by the State Planning Committee (State Planning Committee 2000). The study by SPC particularly pointed out that by constricting villagers in a defined space, and assigning particular land use practice, LFA only transfers problems to other areas without solving the root causes of environmental degradation.

In the case of Phonethong and Taothane, Boulapha et al. (2002) claims that households with limited access to productive agricultural land were more dependent on forest resources. These households collected forest food for day-to-day consumption as well as collected non-timber forest products for trade. The income earned from sales of non-timber forest products such as palm nut (*mak tao*), elephant grass (*khem*), and bamboo shoots (*no mai*) were particularly important to households as it provided cash income through out the year and allowed them to purchase rice in times of shortage. However, following LFA, which defined village boundary,

access to forest resources was restricted to areas within each village boundary. This also led to collection of forest entrance fees from outsiders that accessed village forest to collect different non-timber forest products. According to Boulapha et al. (2002), villagers that accessed forest products frequently expressed their dissatisfaction as they no longer held rights to access resources in neighbouring villages without paying an entrance fee. LFA also changed the types of resources that were available in the forest. For instance, as previous forest fallow were left to regenerate, resources previously collected in these areas such as wild bananas became scarce.

5 Implication of CBNRM Research

Studies on political ecology of natural resource degradation led many researchers to reconsider community's role in natural resource management (Korten, 1986; Uphoff, 1998). Growing awareness of the need to establish a partnership with the local communities led to state support of decentralised natural resource management across Asia throughout the 1990s. In Laos, state decentralisation of forest management began in the early 1990s and developed into LFA that recognised management of local resources by villagers. It also instituionalised local participation in resource management planning.

Comparison of three case studies in the current paper allows us to see that LFA's effect, particularly on local resource use practices. LFA imposed new resouce boundaries that differed from customary resource use practices. This had restricted access to swidden and forest resources particularly by farmers with limited access to productive agricultural land. In some instances, LFA had resulted in outmigration of village population. Through the comparison of case studies, we have learned that LFA is biased towards forest protection, while little efforts are undertaken to improve the agricultural land use.

While LFA enabled local participation in resource management planning, it imposed simplified resource management strucutre that made local authorities and villages accountable to the state policy. At the same time, lack of financial resources, political power to make decisions, and limited alternative opportunities disabled local authorities to adapt resource management practices that adequately incorporated the local circumstaces. As a result, efforts to transfer management responsibility to villages through LFA is still far from resolving problems faced by local villagers such as resource scarcity and degradation. Moreover, three case studies also indicated the need to consider other driver that affect local resource use practices including economic integration, and policy changes.

The three case studies were exploratory studies conducted by groups of teachers from the

National University of Laos as a part of research capacity building project. However, these studies had shed a light to the importance of social science approach in natural resource management. It also had been an exercise for the university teachers to critical review prominent issues in natural resource management based on fieldwork. This had been the most challenging aspect in the research capacity building as teachers often recurred to "data collection (*kep kam khomun*)" without questioning the complex social realities. The project particularly supported three groups to learn from villagers, and to learn from the experience of being in the field. Furthermore, the project supported each groups to feedback their findings to the local communities through village workshops in order to strengthen linkages between academic research and local communities.

The kind of field based research had provoked an iterative learning process with active interaction with local communities. Introudction of the research process, had also provoked the univeristy, which is still a relatively new institution, to consider its role as a leading academic institution along with other national research institutes in Laos. Continued efforts to support field-based academic research on natural resource management in Laos is considered pertinent as the country is experiencing a period of rapid transformation. It is also substantial that more efforts are placed in documenting the changes, as well as analysing the factors that incur socio-economic changes and environmental changes in Lao language not only for Lao academics and researchers, but for policy makers.

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Figure 1. Map of Research Sites